Dell Latitude E6320 Owner's Manual

Regulatory Model P12S
Regulatory Type P12S001

Notes, Cautions, and Warnings

NOTE: A NOTE indicates important information that helps you make better use of your computer.

CAUTION: A CAUTION indicates potential damage to hardware or loss of data if instructions are not followed.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

2011 – 07

Rev. A00

Contents

Working on Your Computer 1

Before Working Inside Your Computer

Use the following safety guidelines to help protect your computer from potential damage and to help to ensure your personal safety. Unless otherwise noted, each procedure included in this document assumes that the following conditions exist:

- You have performed the steps in Working on Your Computer.
- You have read the safety information that shipped with your computer.
- A component can be replaced or--if purchased separately--installed by performing the removal procedure in reverse order.

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.

CAUTION: Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. Read and follow the safety instructions that came with the product.

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface, such as a connector on the back of the computer.

CAUTION: Handle components and cards with care. Do not touch the components or contacts on a card. Hold a card by its edges or by its metal mounting bracket. Hold a component such as a processor by its edges, not by its pins.

CAUTION: When you disconnect a cable, pull on its connector or on its pull-tab, not on the cable itself. Some cables have connectors with locking tabs; if you are disconnecting this type of cable, press in on the locking tabs before you disconnect the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before you connect a cable, ensure that both connectors are correctly oriented and aligned.

NOTE: The color of your computer and certain components may appear differently than shown in this document.

To avoid damaging your computer, perform the following steps before you begin working inside the computer.

1. Ensure that your work surface is flat and clean to prevent the computer cover from being scratched.
2. Turn off your computer (see *Turning Off Your Computer*).
3. If the computer is connected to a docking device (docked) such as the optional Media Base or Battery Slice, undock it.

CAUTION: To disconnect a network cable, first unplug the cable from your computer and then unplug the cable from the network device.

4. Disconnect all network cables from the computer.
5. Disconnect your computer and all attached devices from their electrical outlets.
6. Close the display and turn the computer upside-down on a flat work surface.

NOTE: To avoid damaging the system board, you must remove the main battery before you service the computer.

7. Remove the main battery.
8. Turn the computer top-side up.
9. Open the display.
10. Press the power button to ground the system board.

CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the display.

CAUTION: Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate static electricity, which could harm internal components.

11. Remove any installed ExpressCards or Smart Cards from the appropriate slots.

Recommended Tools

The procedures in this document may require the following tools:

- Small flat-blade screwdriver

- #0 Phillips screwdriver
- #1 Phillips screwdriver
- Small plastic scribe
- Flash BIOS update program CD

Turning Off Your Computer

CAUTION: To avoid losing data, save and close all open files and exit all open programs before you turn off your computer.

1. Shut down the operating system:

   - In Windows Vista :

     Click **Start** , then click the arrow in the lower-right corner of the **Start** menu as shown below, and then click **Shut Down**.

   - In Windows XP:
     Click **Start** → **Turn Off Computer** → **Turn Off** . The computer turns off after the operating system shutdown process is complete.
2. Ensure that the computer and all attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your operating system, press and hold the power button for about 4 seconds to turn them off.

After Working Inside Your Computer

After you complete any replacement procedure, ensure you connect any external devices, cards, and cables before turning on your computer.

CAUTION: To avoid damage to the computer, use only the battery designed for this particular Dell computer. Do not use batteries designed for other Dell computers.

1. Connect any external devices, such as a port replicator, battery slice, or media base, and replace any cards, such as an ExpressCard.
2. Connect any telephone or network cables to your computer.

CAUTION: To connect a network cable, first plug the cable into the network device and then plug it into the computer.

3. Replace the battery.
4. Connect your computer and all attached devices to their electrical outlets.
5. Turn on your computer.

ExpressCard

2

Removing The ExpressCard

1. Follow the procedures in *Before Working On Your Computer*.
2. Press in on the ExpressCard to release it from the computer.



3. Slide the ExpressCard out of the computer.



Installing the ExpressCard

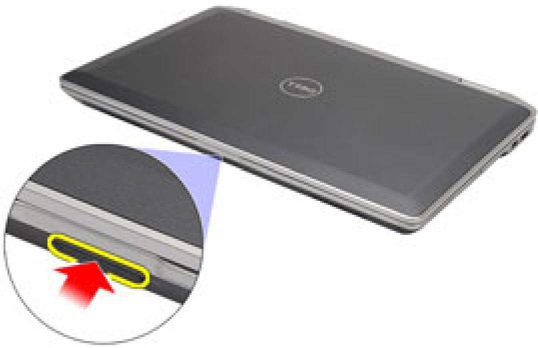
1. Slide the ExpressCard into its slot until it clicks into place.
2. Follow the procedures in *After working inside your computer*.

Secure Digital (SD) Card

3

Removing The Secure Digital (SD) Card

1. Follow the procedures in *Before Working On Your Computer*.
2. Press in on the SD card to release it from the computer.



3. Slide the SD card out of the computer.



Installing the Secure Digital (SD) Card

1. Slide the Secure Digital (SD) card into its slot until it clicks into place.
2. Follow the procedures in *After working inside your computer*.

Battery

4

Removing The Battery

1. Follow the procedures in *Before Working On Your Computer*.
2. Slide the battery latches to unlock the battery.



3. Slide the battery out and remove it from the computer.



Installing The Battery

1. Slide the battery into its slot until it clicks into place.
2. Follow the procedures in *After working inside your computer*.

Subscriber Identity Module (SIM) Card

5

Removing The Subscriber Identity Module (SIM) Card

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Press in on the SIM card to release it from the computer.



4. Slide the SIM card out from the computer.



Installing the Subscriber Identity Module (SIM) Card

1. Slide the SIM card into its compartment.
2. Install the *battery*.
3. Follow the procedures in *After Working Inside Your Computer*.

Hard Drive

6

Removing The Hard Drive

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the screws that secure the hard drive to the computer.



4. Slide and remove the hard drive out of the computer.



5. Remove the screw that secures the hard-drive caddy to the hard drive.



6. Pull and remove the hard-drive caddy away from the hard drive.



Installing The Hard Drive

1. Attach the hard-drive caddy to the hard drive.
2. Tighten the screws to secure the hard-drive caddy to the hard drive.
3. Slide the hard drive into the computer.
4. Replace and tighten the screws that secure the hard drive to the computer.
5. Install the *battery*.
6. Follow the procedures in *After working inside your computer*.

Optical Drive

7

Removing The Optical Drive

1. Follow the procedures in *Before Working On Your Computer*.
2. Press and release the optical drive latch.



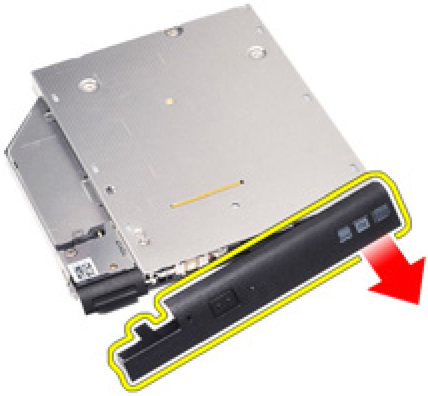
3. Pull the optical drive out of the computer.



4. Pull the optical drive door from one side to release it.



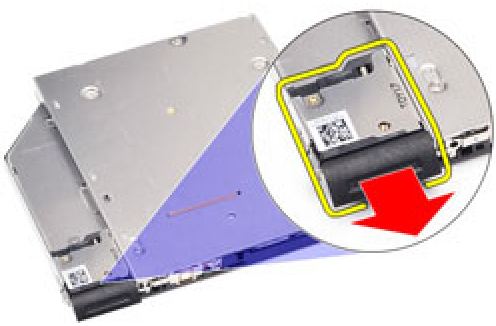
5. Pull the other side of the optical drive door to release it completely from the optical drive.



6. Remove the screw that secures the drive latch to the optical drive.



7. Remove the drive latch from the optical drive.



8. Remove the screws that secures the drive latch bracket to the optical drive.



9. Remove the drive latch bracket from the optical drive.



Installing The Optical Drive

1. Insert the drive latch bracket into the optical drive.
2. Tighten the screws to secure the drive latch bracket to the optical drive.
3. Insert the drive latch into the optical drive.
4. Tighten the screw to secure the drive latch to the optical drive.
5. Push the optical drive door to insert it completely into the optical drive.
6. Push the optical drive door from the other side till it clicks into place.
7. Insert the optical drive using the drive latch.
8. Push the drive latch in to secure it into its slot.
9. Follow the procedures in *After working inside your computer*.

Base Cover

8

Removing The Base Cover

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *Secure Digital (SD) Card*.
4. Remove the screws that secure the base cover to the computer.



5. Lift the base cover up and away from the computer.



Installing The Base Cover

1. Place the base cover to align the screw holes correctly with the computer.
2. Replace and tighten the screws to secure the base cover to the computer.
3. Install the *Secure Digital (SD) Card*.
4. Follow the procedures in *After Working Inside Your Computer*.

Memory Card

9

Removing The Memory

1. Follow the procedures in *Before Working On Your Computer*
2. Remove the *battery*.
3. Remove the *Secure Digital (SD) card*.
4. Remove the *base cover*.
5. Pry the retention clips away from the memory module until it pops up.



6. Remove the memory module from the computer.



Installing The Memory

1. Insert the memory module into the memory slot.
2. Press the clips to secure the memory module to the system board.
3. Install the *base cover*.
4. Install the *Secure Digital (SD) card*.
5. Install the *battery*
6. Follow the procedures in *After Working Inside Your Computer*.

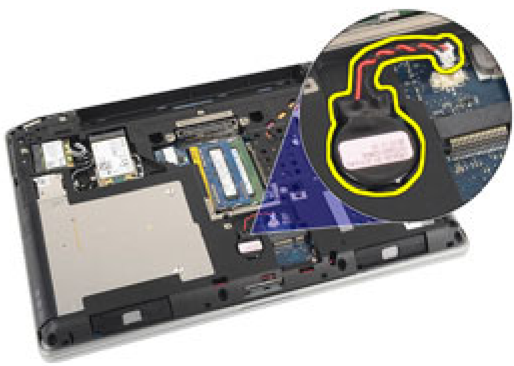
Coin-Cell Battery 10

Removing The Coin-Cell Battery

1. Follow the procedures in *Before Working on Your Computer*.
2. Remove the *battery*.
3. Remove the *Secure Digital (SD) card*.
4. Remove the *base cover*.
5. Disconnect the coin-cell battery cable from the system board.



6. Release and remove the coin-cell battery from the computer.



Installing The Coin-Cell Battery

1. Place the coin-cell battery in its location.
2. Connect the coin-cell battery cable to the system board.
3. Install the *base cover*.
4. Install the *Secure Digital (SD) card*.
5. Install the *battery*
6. Follow the procedures in *After working inside your computer*.

Wireless Local Area Network (WLAN) Card

11

Removing The Wireless Local Area Network (WLAN) Card

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *Secure Digital (SD) card*.
4. Remove the *base cover*.
5. Disconnect the antenna cables from the WLAN card.



6. Remove the screw that secures the WLAN card to the computer.



7. Remove the WLAN card from its slot on the system board.



Installing The Wireless Local Area Network (WLAN) Card

1. Insert the WLAN card into its connector at a 45–degree angle.
2. Replace and tighten the screw that secures the WLAN card to the computer.
3. Connect the antenna cables according to the color code on the WLAN card.
4. Install the *base cover*.
5. Install the *Secure Digital (SD) card*.
6. Install the *battery*
7. Follow the procedures in *After Working Inside Your Computer*.

Wireless Wide Area Network (WWAN) Card

12

Removing The Wireless Wide Area Network (WWAN) Card

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *Secure Digital (SD) card*.
4. Remove the *base cover*.
5. Disconnect the antenna cables from the WWAN card.



6. Remove the screw that secures the WWAN card to the computer.



7. Remove the WWAN card from the computer.



Installing The Wireless Wide Area Network (WWAN) Card

1. Insert the WWAN card into its connector at a 45–degree angle.
2. Replace and tighten the screw to secure the WWAN card to the computer.
3. Connect the antenna cables according to the color code on the WLAN card.
4. Install the *base cover*.
5. Install the *Secure Digital (SD) card*.
6. Install the *battery*
7. Follow the procedures in *After Working Inside Your Computer*.

Keyboard Trim

13

Removing The Keyboard Trim

1. Follow the procedures in *Before Working On Your Computer*.
2. Using a plastic scribe, pry under the keyboard trim to release it from the computer.



3. Lift the keyboard trim to release the tabs and remove it from the computer.



Installing The Keyboard Trim

1. Align the keyboard trim with the keyboard and snap it into place.
2. Follow the procedures in *After Working Inside Your Computer*.

Keyboard

14

Removing The Keyboard

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *keyboard trim*.
4. Remove the screws that secure the keyboard to the computer.



5. Remove the screws that secure the keyboard to the palmrest assembly.



6. Flip the keyboard over and lay it toward the display.



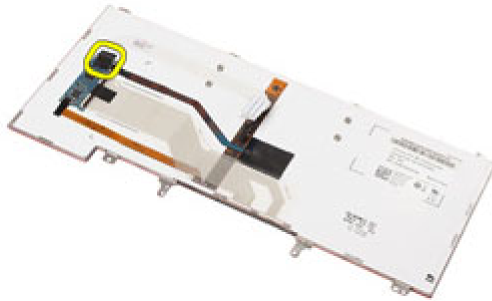
7. Lift the clip to release the keyboard cable and disconnect it from the computer.



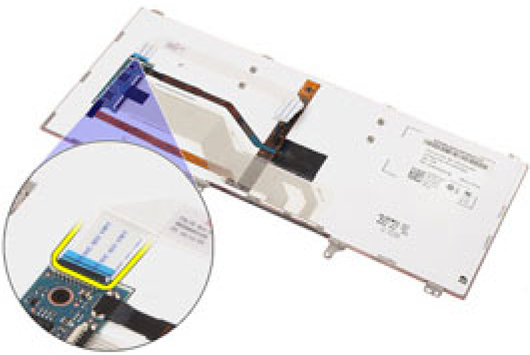
8. Remove the keyboard from the computer.



9. Remove the tape securing the keyboard cable from the keyboard.



10. Disconnect and remove the keyboard cable from the keyboard.



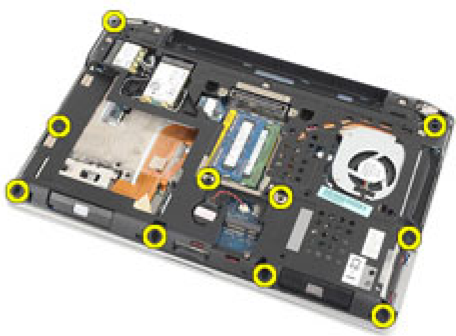
Installing The Keyboard

1. Connect the keyboard cable and secure it to the keyboard using the tape.
2. Connect the keyboard cable to its connector on the system board.
3. Turn the keyboard over and lay it on the palmrest.
4. Replace and tighten the screws to secure the keyboard to the palmrest assembly.
5. Replace and tighten the screws to secure the keyboard to the computer.
6. Install the *battery*.
7. Install the *keyboard trim*
8. Follow the procedures in *After Working Inside Your Computer*.

Palm Rest 15

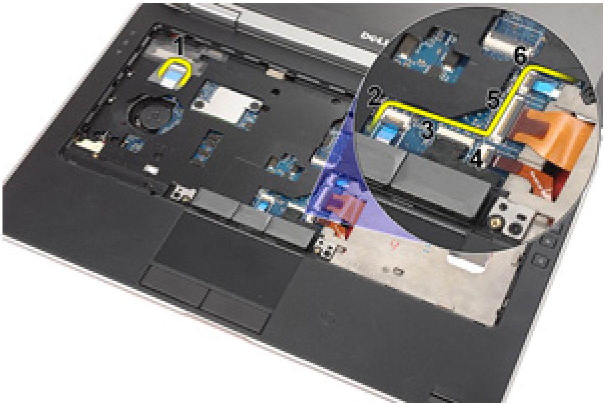
Removing The Palmrest Assembly

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *Secure Digital (SD) card*.
4. Remove the *optical drive*.
5. Remove the *base cover*.
6. Remove the *ExpressCard*.
7. Remove the *hard drive*.
8. Remove the *keyboard trim*.
9. Remove the *keyboard*.
10. Remove the screws that secure the palmrest assembly to the computer.

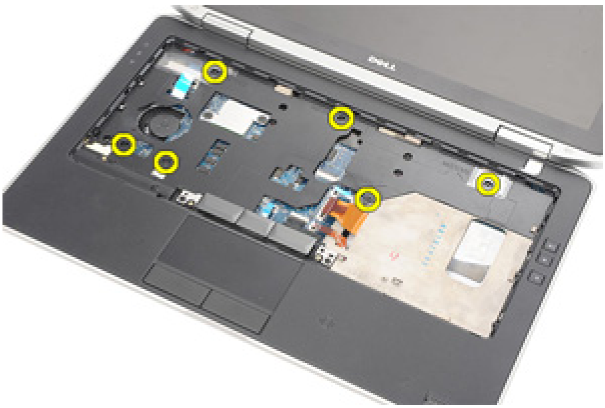


11. Flip the computer and disconnect the following cables from the system board:

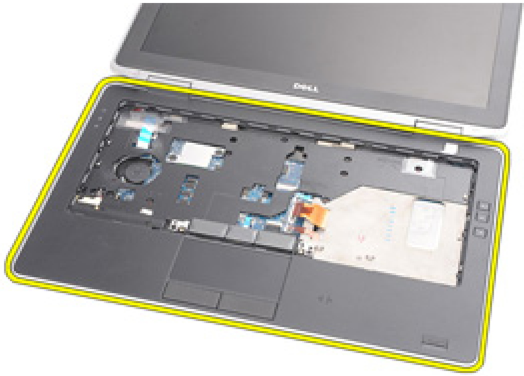
    - LED board
    - touchpad
    - bluetooth
    - contactless smart card reader
    - ExpressCard
    - fingerprint reader



12. Remove the screws to release the palmrest assembly from the system board.



13. Lift the palmrest assembly along the edges to unlock the tabs and remove it away from the computer.



Installing The Palmrest Assembly

1. Align the palmrest assembly with the computer and snap it into place.
2. Replace and tighten the screws to secure the palmrest assembly to the system board.
3. Connect the following cables to the system board:
   - LED board
   - touchpad
   - bluetooth
   - contactless smart card reader
   - Express Card
   - fingerprint reader
4. Replace and tighten the screws to secure the palmrest assembly to the computer.
5. Install the *keyboard*.
6. Install the *keyboard trim*.
7. Install the *hard drive*.
8. Install the *ExpressCard*.
9. Install the *base cover*.
10. Install the *optical drive*.
11. Install the *Secure Digital (SD) card*.
12. Install the *battery*.
13. Follow the procedures in *After Working Inside Your Computer*.

Bluetooth Card

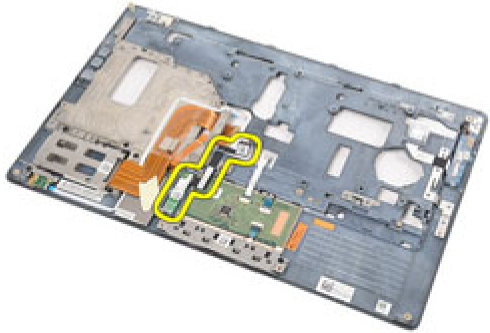
16

Removing The Bluetooth Card

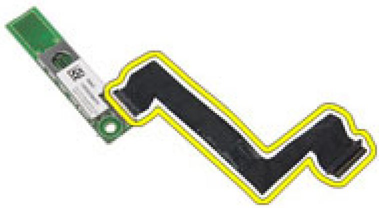
1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *Secure Digital (SD) card*.
4. Remove the *optical drive*.
5. Remove the *base cover*.
6. Remove the *ExpressCard*.
7. Remove the *hard drive*.
8. Remove the *keyboard trim*.
9. Remove the *keyboard*.
10. Remove the *palmrest assembly*.
11. Remove the screws that secure the bluetooth card to the palmrest assembly.



12. Remove the bluetooth card from the palmrest assembly.



13. Release and remove the bluetooth cable from the bluetooth card.



Installing The Bluetooth Card

1. Connect the bluetooth cable to the bluetooth card.
2. Place the bluetooth card on the palmrest assembly.
3. Replace and tighten the screw to secure the bluetooth card to the palmrest assembly.
4. Install the *palmrest assembly*.
5. Install the *keyboard*.
6. Install the *keyboard trim*.
7. Install the *hard drive*.
8. Install the *ExpressCard*.
9. Install the *base cover*.
10. Install the *optical drive*.
11. Install the *Secure Digital (SD) card*.
12. Install the *battery*.
13. Follow the procedures in *After Working Inside Your Computer*.

LED Board

17

Removing The LED Board

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *Secure Digital (SD) card*.
4. Remove the *optical drive*.
5. Remove the *base cover*.
6. Remove the *ExpressCard*.
7. Remove the *hard drive*.
8. Remove the *keyboard trim*.
9. Remove the *keyboard*.
10. Remove the *palmrest assembly*.
11. Release the LED board cable from the routing channel.



12. Remove the screw that secures the LED board to the palm rest assembly.



13. Remove the LED board from the palm rest assembly.



Installing The LED Board

1. Align the LED board on the palmrest.
2. Replace and tighten the screw that secure the LED board to the palmrest.
3. Route the LED board cable to its original position.
4. Install the *palmrest assembly*.
5. Install the *keyboard*.
6. Install the *keyboard trim*.
7. Install the *hard drive*.
8. Install the *ExpressCard*.
9. Install the *base cover*.
10. Install the *optical drive*.
11. Install the *Secure Digital (SD) card*.
12. Install the *battery*.
13. Follow the procedures in *After Working Inside Your Computer*.

Smart Card Reader 18

Removing The Smart Card Reader

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *Secure Digital (SD) card*.
4. Remove the *optical drive*.
5. Remove the *base cover*.
6. Remove the *ExpressCard*.
7. Remove the *hard drive*.
8. Remove the *keyboard trim*.
9. Remove the *keyboard*.
10. Remove the *palmrest assembly*
11. Disconnect the smart card reader cable from the system board.



12. Remove the screws that secure the smart card reader to the computer.



13. Lift and remove the smart card reader from the computer.



Installing The Smart Card Reader

1. Place the smart card reader to its original position on the computer.
2. Replace and tighten the screws to secure the smart card reader to the computer.
3. Connect the smart card reader cable to the system board.
4. Replace and tighten the screws to secure the palmrest assembly to the computer.
5. Install the *palmrest assembly*.
6. Install the *keyboard*.
7. Install the *keyboard trim*.
8. Install the *hard drive*.
9. Install the *ExpressCard*.
10. Install the *base cover*.
11. Install the *optical drive*.
12. Install the *Secure Digital (SD) card*.
13. Install the *battery*.
14. Follow the procedures in *After Working Inside Your Computer*.

Media Board 19

Removing The Media Board

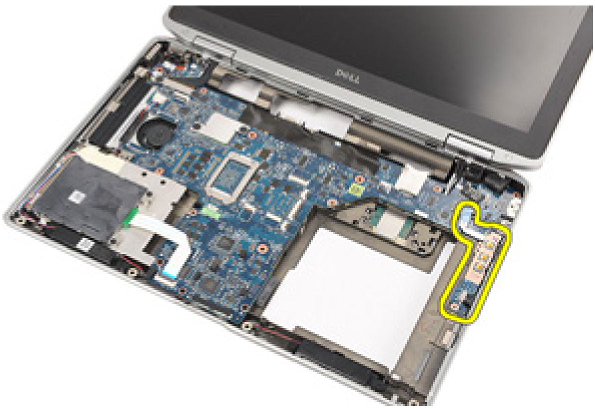
1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *Secure Digital (SD) card*.
4. Remove the *optical drive*.
5. Remove the *base cover*.
6. Remove the *ExpressCard*.
7. Remove the *hard drive*.
8. Remove the *keyboard trim*.
9. Remove the *keyboard*.
10. Remove the *palmrest assembly*.
11. Disconnect the media board cable from the system board.



12. Remove the screws that secures the media board to the computer.



13. Remove the media board from the computer.



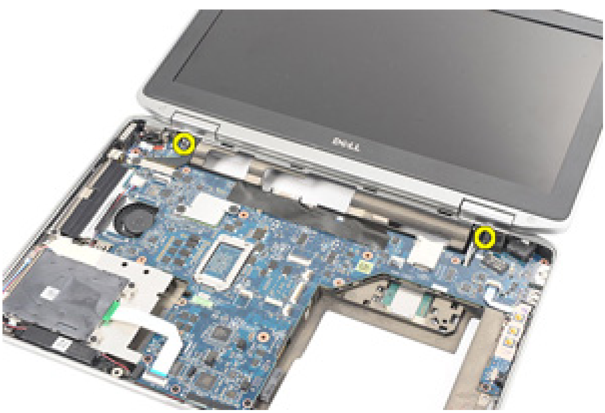
Installing The Media Board

1. Align the media board to its original position on the computer.
2. Replace and tighten the screws to secure the media board to the computer.
3. Connect the media board cable to the system board.
4. Install the *palmrest assembly*.
5. Install the *keyboard*.
6. Install the *keyboard trim*.
7. Install the *hard drive*.
8. Install the *ExpressCard*.
9. Install the *base cover*.
10. Install the *optical drive*.
11. Install the *Secure Digital (SD) card*.
12. Install the *battery*.
13. Follow the procedures in *After Working Inside Your Computer*.

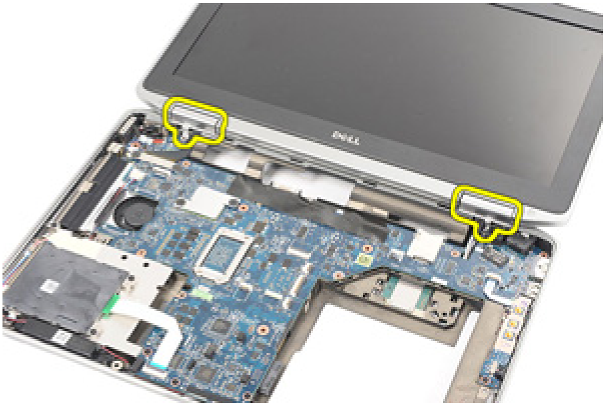
Display Hinges 20

Removing The Display Hinge Covers

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *Secure Digital (SD) card*.
4. Remove the *optical drive*.
5. Remove the *base cover*.
6. Remove the *ExpressCard*.
7. Remove the *hard drive*.
8. Remove the *keyboard trim*.
9. Remove the *keyboard*.
10. Remove the *palmrest assembly*.
11. Remove the screws that secure the display hinge covers to the computer.



12. Remove the display hinge covers from the computer.



Installing The Display Hinge Covers

1. Place the display hinges in the appropriate positions.
2. Replace and tighten the screws to secure the display hinge covers to the computer.
3. Install the *palmrest assembly*.
4. Install the *keyboard*.
5. Install the *keyboard trim*.
6. Install the *hard drive*.
7. Install the *ExpressCard*.
8. Install the *base cover*.
9. Install the *optical drive*.
10. Install the *Secure Digital (SD) card*.
11. Install the *battery*.
12. Follow the procedures in *After Working Inside Your Computer*.

Display Assembly 21

Removing The Display Assembly

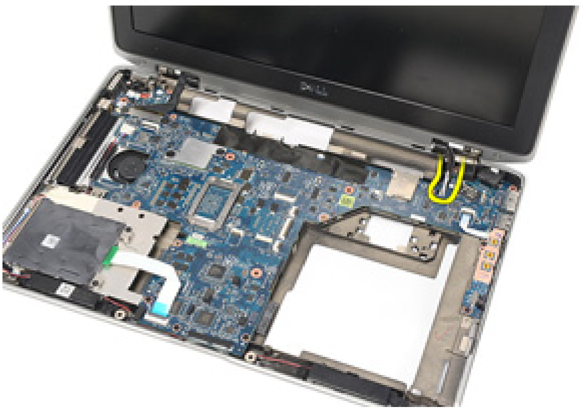
1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *Secure Digital (SD) card*.
4. Remove the *optical drive*.
5. Remove the *base cover*.
6. Remove the *ExpressCard*.
7. Remove the *hard drive*.
8. Remove the *keyboard trim*.
9. Remove the *keyboard*.
10. Remove the *palmrest assembly*.
11. Remove the *display hinge covers*.
12. Release the antenna cables from the computer.



13. Remove the screws that secure the display assembly to the computer.



14. Pull out the antenna cables from their routing channels?



15. Remove the screws that secure the display cable bracket to the system board.



16. Remove the display cable bracket from the computer.



17. Pull the display cable to disconnect it from the system board.



18. Remove the screw that secures the display assembly to the computer.



19. Remove the display assembly from the computer.



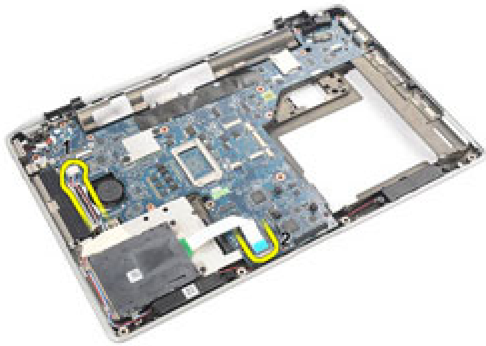
Installing The Display Assembly

1. Align the display assembly into its original position on the computer.
2. Replace and tighten the screw to secure the display assembly to the computer.
3. Replace and connect the display cable to the system board.
4. Align the display cable bracket to its original position.
5. Replace and tighten the screws to secure the display cable bracket to the system board.
6. Route the antenna cables through the system board.
7. Replace and tighten the screws to secure the display panel to the computer.
8. Route the antenna cables to their original position.
9. Install the *display hinge covers*.
10. Install the *palmrest assembly*.
11. Install the *keyboard*.
12. Install the *keyboard trim*.
13. Install the *hard drive*.
14. Install the *ExpressCard*.
15. Install the *base cover*.
16. Install the *optical drive*.
17. Install the *Secure Digital (SD) card*.
18. Install the *battery*.
19. Follow the procedures in *After Working Inside Your Computer*.

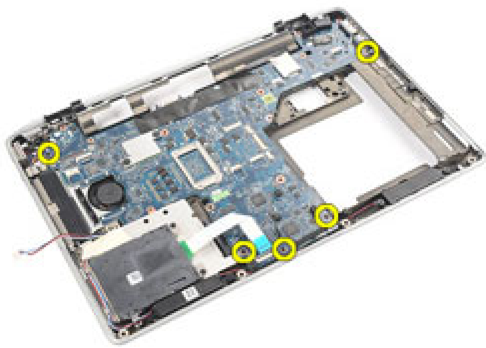
System Board 22

Removing The System Board

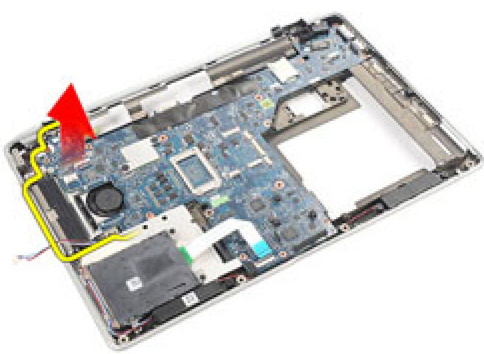
1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *Secure Digital (SD) card*.
4. Remove the *optical drive*.
5. Remove the *subscriber identity module (SIM) card*.
6. Remove the *base cover*.
7. Remove the *ExpressCard*.
8. Remove the *hard drive*.
9. Remove the *keyboard trim*.
10. Remove the *keyboard*.
11. Remove the *wireless local area network (WLAN) card*.
12. Remove the *wireless wide area network (WWAN) card*.
13. Remove the *coin-cell battery*.
14. Remove the *media board*.
15. Remove the *palmrest assembly*.
16. Remove the *display hinge covers*.
17. Remove the *display assembly*.
18. Disconnect and release the smart card and the speaker cables from the system board.



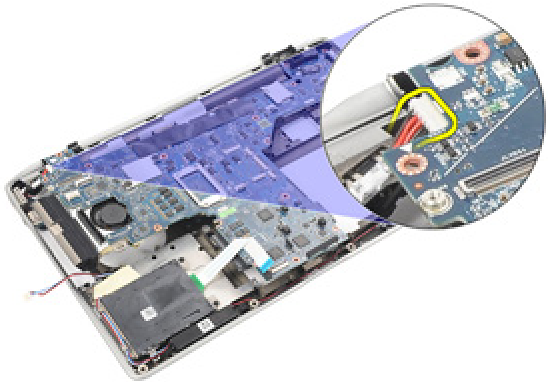
19. Remove the screws that secure the system board to the computer.



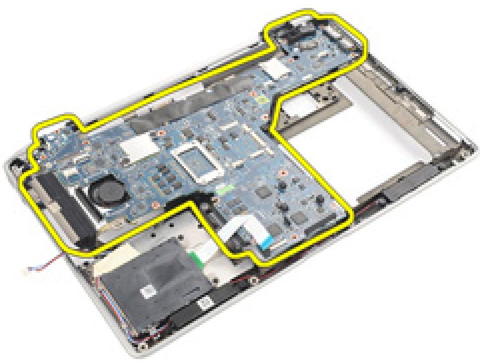
20. Lift the system board to locate the power supply cable.



21. Disconnect the power supply cable from the system board.



22. Lift and remove the system board from the computer.



NOTE: Steps 23 and 24 are applicable for computers that shipped in the United States of America.

23. Flip the system over and remove the screw that secures the TAA board.



24. Remove the TAA board from the system.



Installing The System Board

1. Place the TAA board to its original position.

NOTE: Steps 1 and 2 are applicable for computers that shipped in the United States of America.

2. Replace and tighten the screw to secure the TAA board to the computer.
3. Align the system board into its original position on the computer.
4. Connect the power supply cable.
5. Replace and tighten the screws to secure the system board to the computer.
6. Route and connect the smart card and speaker cables to the system board.
7. Install the *display assembly*.
8. Install the *display hinge covers*.
9. Install the *palmrest assembly*.
10. Install the *keyboard*.
11. Install the *keyboard trim*.
12. Install the *hard drive*.
13. Install the *ExpressCard*.
14. Install the *base cover*.
15. Install the *optical drive*.
16. Install the *Secure Digital (SD) card*.
17. Install the *battery*.
18. Follow the procedures in *After Working Inside Your Computer*.

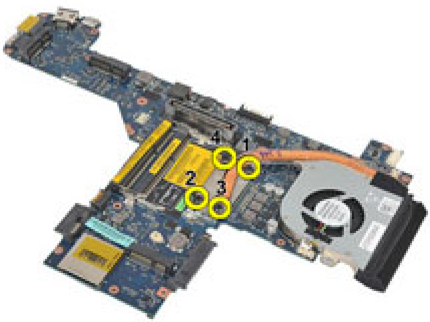
Heat Sink 23

Removing The Heat-Sink Assembly

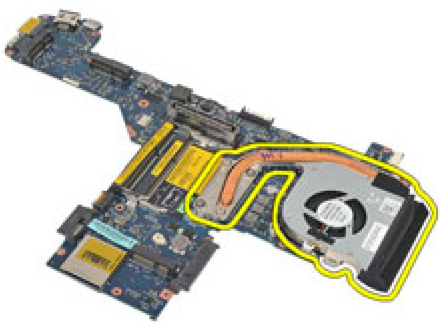
1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *Secure Digital (SD) card*.
4. Remove the *optical drive*.
5. Remove the *subscriber identity module (SIM) card*.
6. Remove the *base cover*.
7. Remove the *ExpressCard*.
8. Remove the *hard drive*.
9. Remove the *keyboard trim*.
10. Remove the *keyboard*.
11. Remove the *wireless local area network (WLAN) card*.
12. Remove the *wireless wide area network (WWAN) card*.
13. Remove the *coin-cell battery*.
14. Remove the *media board*.
15. Remove the *palmrest assembly*.
16. Remove the *display hinge covers*.
17. Remove the *display assembly*.
18. Remove the *system board*.
19. Disconnect the heat-sink cable from the system board.



20. Loosen the screws that secure the heat-sink assembly to the system board.



21. Remove the heat-sink assembly from the system board.



Installing The Heat-Sink Assembly

1. Align the heat-sink assembly to its original position on the system board.
2. Tighten the screws to secure the heat-sink assembly to the system board.
3. Connect the heat-sink cable to the system board.
4. Install the *heat-sink assembly*.
5. Install the *display assembly*.
6. Install the *display hinge covers*.
7. Install the *palmrest assembly*.
8. Install the *keyboard*.
9. Install the *keyboard trim*.
10. Install the *hard drive*.
11. Install the *ExpressCard*.
12. Install the *base cover*.
13. Install the *optical drive*.
14. Install the *Secure Digital (SD) card*.
15. Install the *battery*.
16. Follow the procedures in *After Working Inside Your Computer*.

Input/Output Panel

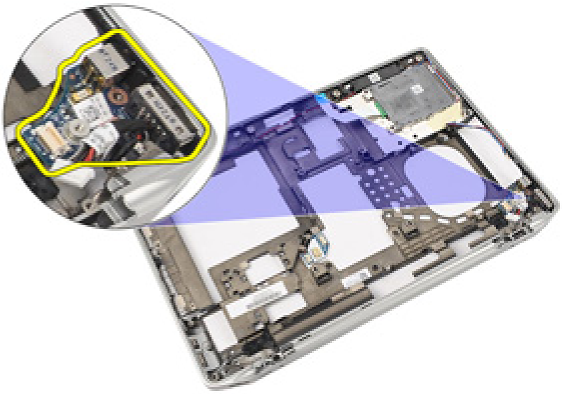
24

Removing The Input/Output Panel

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *Secure Digital (SD) card*.
4. Remove the *optical drive*.
5. Remove the *subscriber identity module (SIM) card*.
6. Remove the *base cover*.
7. Remove the *ExpressCard*.
8. Remove the *hard drive*.
9. Remove the *keyboard trim*.
10. Remove the *keyboard*.
11. Remove the *wireless local area network (WLAN) card*.
12. Remove the *wireless wide area network (WWAN) card*.
13. Remove the *coin-cell battery*.
14. Remove the *media board*.
15. Remove the *palmrest assembly*.
16. Remove the *display hinge covers*.
17. Remove the *display assembly*.
18. Remove the screw that secures the I/O panel to the computer.



19. Remove the I/O panel from the computer.



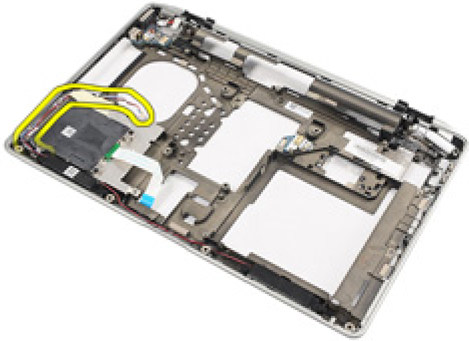
Installing The Input/Output Panel

1. Replace the I/O panel in the computer
2. Tighten the screw securing the I/O panel to the computer.
3. Install the *display assembly*.
4. Install the *display hinge covers*.
5. Install the *palmrest assembly*.
6. Install the *keyboard*.
7. Install the *keyboard trim*.
8. Install the *hard drive*.
9. Install the *ExpressCard*.
10. Install the *base cover*.
11. Install the *optical drive*.
12. Install the *Secure Digital (SD) card*.
13. Install the *battery*.
14. Follow the procedures in *After Working Inside Your Computer*.

Speaker 25

Removing The Speakers

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *base cover*.
4. Remove the *Secure Digital (SD) card*.
5. Remove the *optical drive*.
6. Remove the *subscriber identity module (SIM) card*.
7. Remove the *ExpressCard*.
8. Remove the *hard drive*.
9. Remove the *keyboard trim*.
10. Remove the *keyboard*.
11. Remove the *wireless local area network (WLAN) card*.
12. Remove the *wireless wide area network (WWAN) card*.
13. Remove the *coin-cell battery*.
14. Remove the *media board*.
15. Remove the *palmrest assembly*.
16. Remove the *display hinge covers*.
17. Remove the *display assembly*.
18. Remove the *system board*
19. Remove the speaker cable from the routing channel.



20. Remove the screws that secure the speakers to the computer.



21. Remove the speakers from the computer.



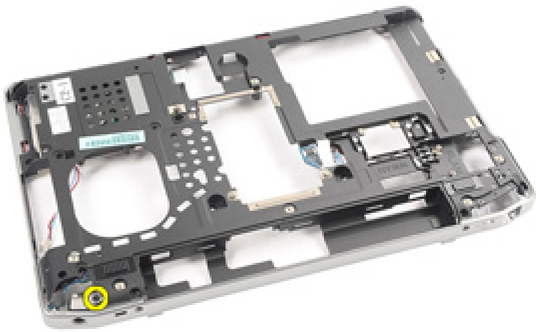
Installing The Speakers

1. Replace the speakers to their original position in the computer.
2. Tighten the screws to secure the speakers to the computer.
3. Route and connect the speaker cable.
4. Install the *system board*
5. Install the *display assembly*.
6. Install the *display hinge covers*.
7. Install the *palmrest assembly*.
8. Install the *coin-cell battery*.
9. Install the *Wireless Local Area Network (WLAN) card*
10. Install the *Wireless Wide Area Network (WWAN) card*
11. Install the *keyboard*.
12. Install the *keyboard trim*.
13. Install the *hard drive*.
14. Install the *ExpressCard*.
15. Install the *media board*.
16. Install the *Subscriber Identity Module (SIM) card*
17. Install the *optical drive*.
18. Install the *Secure Digital (SD) card*.
19. Install the *base cover*.
20. Install the *battery*.
21. Follow the procedures in *After Working Inside Your Computer*.

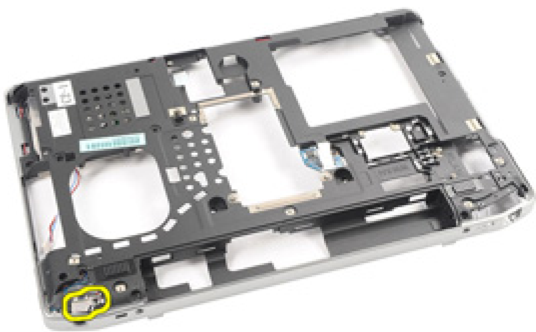
DC-In Port 26

Removing The DC-In Port

1. Follow the procedures in *Before Working on Your Computer*.
2. Remove the *battery*.
3. Remove the *Secure Digital (SD) card*.
4. Remove the *optical drive*.
5. Remove the *subscriber identity module (SIM) card*.
6. Remove the *base cover*.
7. Remove the *ExpressCard*.
8. Remove the *hard drive*.
9. Remove the *keyboard trim*.
10. Remove the *keyboard*.
11. Remove the *wireless local area network (WLAN) card*.
12. Remove the *wireless wide area network (WWAN) card*.
13. Remove the *coin-cell battery*.
14. Remove the *media board*.
15. Remove the *palmrest assembly*.
16. Remove the *display hinge covers*.
17. Remove the *display assembly*.
18. Remove the *system board*
19. Remove the screw that secures the DC-In bracket to the system.



20. Remove the DC-In bracket from the system.



21. Remove the DC-In port from the system.



Installing The DC-In Port

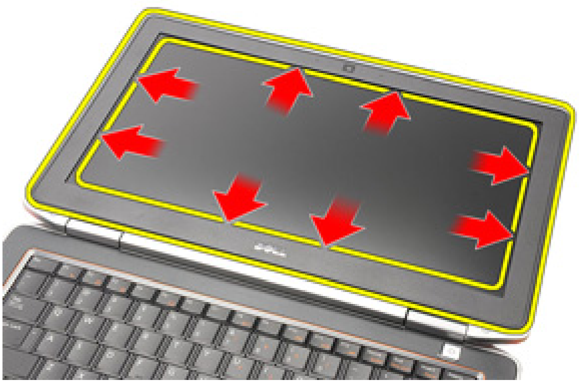
1. Replace the DC-In port to its original position in the computer.
2. Replace the DC-In bracket to its original position in the computer.
3. Tighten the screw to secure the DC-In bracket to the computer.
4. Install the *system board*
5. Install the *display assembly*.
6. Install the *display hinge covers*.
7. Install the *palmrest assembly*.
8. Install the *media board*
9. Install the *Wireless Local Area Network (WLAN) card*
10. Install the *Wireless Wide Area Network (WWAN) card*
11. Install the *coin cell battery*
12. Install the *keyboard*.
13. Install the *keyboard trim*.
14. Install the *hard drive*.
15. Install the *ExpressCard*.
16. Install the *base cover*.
17. Install the *Subscriber Identity Module (SIM) Card*
18. Install the *optical drive*.
19. Install the *Secure Digital (SD) card*.
20. Install the *battery*.
21. Follow the procedures in *After Working Inside Your Computer*.

Display Bezel

27

Removing The Display Bezel

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Starting from the bottom, pry the bezel from inside the display assembly.



4. Remove the bezel from the display assembly.



Installing The Display Bezel

1. Place the display bezel onto the display assembly.
2. Work along to the top and bottom edges of the display bezel.
3. Press the left and right edges of the display bezel.
4. Install the *battery*.
5. Follow the procedures in *After Working Inside Your Computer*.

Display Panel 28

Removing The Display Panel

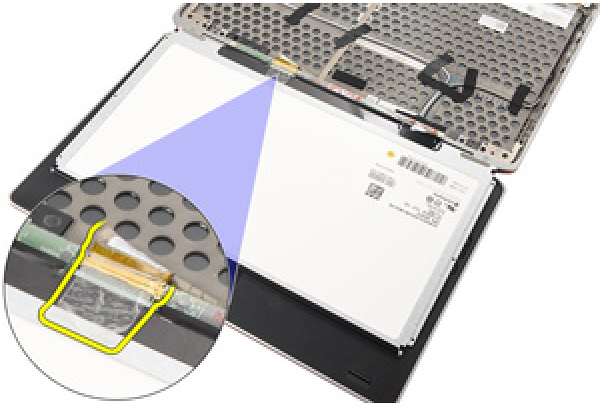
1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *display bezel*
4. Remove the screws that secures the display panel to the display assembly.



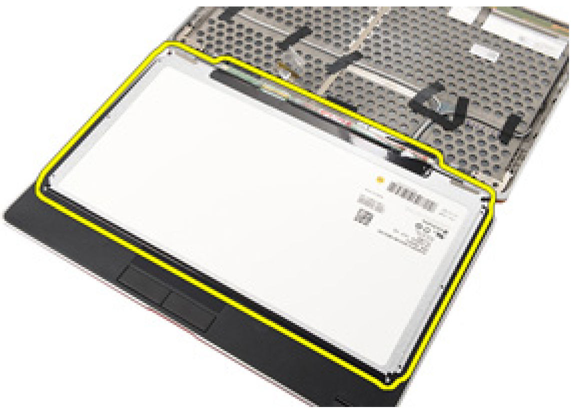
5. Flip the display panel over.



6. Disconnect the Low-Voltage Differential Signaling (LVDS) cable from the display panel.



7. Remove the display panel from the display assembly.



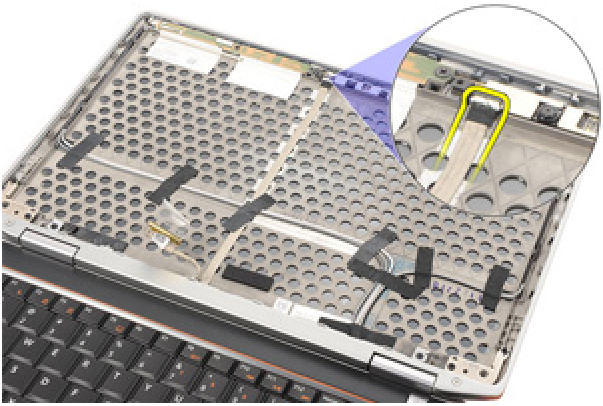
Installing The Display Panel

1. Align the display panel in its original position on the display assembly.
2. Connect the Low-Voltage Differential Signaling (LVDS) cable to the display panel.
3. Tighten the screws to secure the display panel to the display assembly.
4. Install the *display bezel*
5. Install the *battery*
6. Follow the procedures in *After Working Inside Your Computer*.

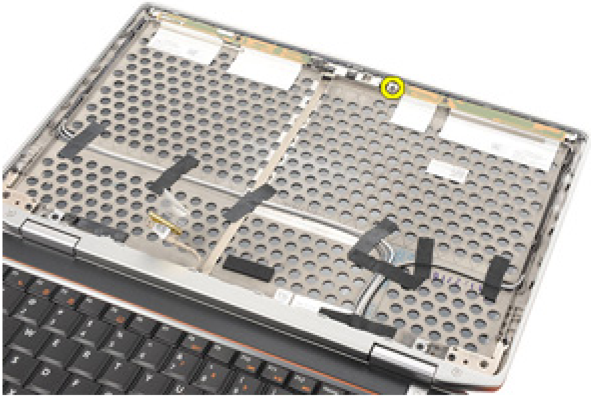
Camera 29

Removing The Camera

1. Follow the procedures in *Before Working On Your Computer*.
2. Remove the *battery*.
3. Remove the *display bezel*.
4. Remove the *display panel*.
5. Disconnect the cable from the camera module.



6. Remove the screw that secures the camera and microphone to the display assembly.



7. Remove the camera from the display assembly.



Installing The Camera

1. Place the camera module to its original position in the display assembly.
2. Tighten the screw to secure the camera to the display assembly.
3. Connect the camera cable to the camera.
4. Install the *display panel*.
5. Install the *display bezel*.
6. Install the *battery*.
7. Follow the procedures in *After working inside your computer*.

Specifications 30

Technical Specifications

NOTE: Offerings may vary by region. The following specifications are only those required by law to ship with your computer. For more information regarding the configuration of your computer, click **Start** → **Help and Support** and select the option to view information about your computer.

System Information	
Chipset	Intel Mobile QM67 Express chipset
DRAM bus width	64-bit
Flash EPROM	SPI 32 Mbits
PCIe Gen1 bus	100 MHz

Processor	
Types	• Intel Core i3 series • Intel Core i5 series with Turbo BoostTechnology 2.0 • Intel Core i7 series with Turbo BoostTechnology 2.0
L2 cache	up to 6 MB
External bus frequency	1333 MHz

Memory	
Memory connector	two SODIMM slots
Memory capacity	1 GB, 2 GB, or 4 GB
Memory type	DDR3 SDRAM (1333 MHz)
Minimum memory	2 GB
Maximum memory	8 GB

Audio	
Type	four-channel high definition audio
Controller	IDT 92HD90
Stereo conversion	24-bit (analog-to-digital and digital-to-analog)
Interface:	
Internal	high definition audio
External	microphone-in/stereo headphones/external speakers connector
Speakers	two
Internal speaker amplifier	0.5 W (typical) per channel
Volume controls	keyboard function keys, program menus

Video	
Type	integrated on system board
Controller	Intel HD Graphics

Communications	
Network adapter	10/100/1000 Mbps Ethernet LAN
Wireless	internal wireless local area network (WLAN) and wireless wide area network (WWAN)

Ports and Connectors	
Audio	one microphone/stereo headphone/speakers connector
Video	• one 15-pin VGA connector • one 19-pin mini HDMI connector
Network adapter	one RJ-45 connector
USB	one 4-pin USB 2.0-compliant connector and one eSATA/USB 2.0-compliant connector
Memory card reader	one 5-in-1 memory card reader

Contactless Smart Card	
Supported Smart Cards/ Technologies	ISO14443A — 106 kbps, 212 kbps, 424 kbps, and 848 kbps ISO14443B — 106 kbps, 212 kbps, 424 kbps, and 848 kbps ISO15693 HID iClass FIPS201 NXP Desfire

Display	
Type	white Light Emitting Diode (WLED) display
Size	13.3 inch high definition (HD)
Active area (X/Y)	293.42 mm x 164.97 mm
Dimensions:	
Height	189.00 mm (7.44 inches)
Width	314.00 mm (12.36 inches)
Diagonal	337.82 mm (13.30 inches)
Maximum resolution	1366 x 768 pixels at 263 K colors
Maximum Brightness	200 nits
Operating angle	0° (closed) to 135°
Refresh rate	60 Hz
Minimum Viewing angles:	
Horizontal	+/- 40°
Vertical	+10°/-30°
Pixel pitch	0.2148 mm

Keyboard	
Number of keys	United States: 86 keys, United Kingdom: 87 keys, Brazil: 87 keys, and Japan: 90 keys
Layout	QWERTY/AZERTY/Kanji

Touchpad	
Active Area:	

Touchpad	
X-axis	80.00 mm
Y-axis	40.70 mm

Battery	
Type	• 3-cell (30Wh) lithium ion battery with ExpressCharge • 6-cell (60Wh) lithium ion battery with ExpressCharge • 6-cell (58Wh) lithium ion battery
Dimensions:	
3-cell	
Depth	29.97 mm (1.18 inches)
Height	19.80 mm (0.78 inch)
Width	208.00 mm (8.19 inches)
6-cell	
Depth	54.10 mm (2.13 inches)
Height	20.85 mm (0.82 inch)
Width	214.00 mm (8.43 inches)
Weight:	
3-cell	177.00 g (0.39 lb)
6-cell	349.00 g (0.77 lb)
Charge time with computer off:	
3-cell and 6-cell (60Wh)	approximately 1 hour to 80% capacity and 2 hours to 100% capacity
Voltage	11.10 VDC
Temperature range:	
Operating	0 °C to 35 °C (32 °F to 95 °F)
Non-Operating	–40 °C to 65 °C (–40 °F to 149 °F)

Battery	
Coin-cell battery	3 V CR2032 lithium coin cell

AC Adapter	
Type	65 W and 90 W
Input voltage	100 VAC to 240 VAC
Input current (maximum)	1.50 A/1.60 A/1.70 A
Input frequency	50 Hz to 60 Hz
Output power	65 W and 90 W
Output current	3.34 A and 4.62 A (continuous)
Rated output voltage	19.5 +/– 1.0 VDC
Temperature range:	
Operating	0 °C to 40 °C (32 °F to 104 °F)
Non-Operating	–40 °C to 70 °C (–40 °F to 158 °F)

Physical	
Height	25.40 mm to 30.10 mm (1.00 inch to 1.18 inches)
Width	335.00 mm (13.19 inches)
Depth	223.30 mm (8.79 inches)
Weight (with 3-cell battery)	1.65 kg (3.64 lb)

Environmental	
Temperature:	
Operating	0 °C to 35 °C (32 °F to 95 °F)
Storage	–40 °C to 65 °C (–40 °F to 149 °F)
Relative humidity (maximum):	
Operating	10 % to 90 % (noncondensing)
Storage	5 % to 95 % (noncondensing)
Altitude (maximum):	

Environmental	
Operating	–15.24 m to 3048 m (–50 ft to 10,000 ft)
Non-Operating	–15.24 m to 10,668 m (–50 ft to 35,000 ft)
Airborne contaminant level	G1 as defined by ISA-71.04–1985

System Setup 31

Overview

System Setup allows you to:

- change the system configuration information after you add, change, or remove any hardware in your computer.
- set or change a user-selectable option such as the user password.
- read the current amount of memory or set the type of hard drive installed.

Before you use System Setup, it is recommended that you write down the System Setup screen information for future reference.

CAUTION: Unless you are an expert computer user, do not change the settings for this program. Certain changes can cause your computer to work incorrectly.

Entering System Setup

1. Turn on (or restart) your computer.
2. When the blue DELL logo is displayed, you must watch for the F2 prompt to appear.
3. Once the F2 prompt appears, press <F2> immediately.

NOTE: The F2 prompt indicates that the keyboard has initialized. This prompt can appear very quickly, so you must watch for it to display, and then press <F2> . If you press <F2> before you are prompted, this keystroke will be lost.

4. If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft Windows desktop. Then, shut down your computer and try again.

System Setup Menu Options

The following sections describe the menu options available in the System Setup.

General

Option	Description
System Information	This section lists the primary hardware features of your computer. • System Information • Memory Information • Processor Information • Device Information
Battery Information	Displays the battery status and the type of AC adapter connected to the computer.
Boot Sequence	Allows you to change the order in which the computer attempts to find an operating system. • Diskette Drive • Internal HDD • USB Storage Device • CD/DVD/CD-RW Drive • Onboard NIC • Cardbus NIC You can also choose the Boot List option. The options are: • Legacy • UEFI
Date/Time	Allows you to change the date and time.

System Configuration

Option	Description

NOTE: System Configuration contains options and settings related to integrated system devices. Depending on your computer and installed devices, the items listed in this section may or may not appear.

Integrated NIC	Allows you to configure the integrated network controller. The options are: • Disabled • Enabled

Option	Description
	• Enabled w/PXE Default Setting: Enabled w/PXE
System Management	Allows you to control the systems management mechanism. The options are: • Disabled • Alert Only • ASF 2.0 • DASH/ASF 2.0 Default Setting: DASH/ASF 2.0
Parallel Port	Allows you to configure the parallel port on the docking station. The options are: • Disabled • AT • PS2 • ECP Default Setting: AT
Serial Port	Allows you to configure the integrated serial port. The options are: • Disabled • COM1 • COM2 • COM3 • COM4 Default Setting: COM1
SATA Operation	Allows you to configure the internal SATA hard-drive controller. The options are: • Disabled • ATA • AHCI • RAID On Default Setting: RAID On

Option	Description
	NOTE: SATA is configured to support RAID mode.
USB Controller	Allows you to control the USB controller. The options are: • Enable USB Controller • Diasanle USB Mass Storage Dev • Disable USB Controller Default Setting: **Enable USB Controller**
Diskette Drive	Allows you to activate the diskette drives. The options are: • Disabled • Enabled Default Setting: **Enabled**
Miscellaneous Devices	Allows you to enable or disable the following devices: • Internal Modem • Fixed Bay • eSATA Ports • Hard Drive Free Fall Protection • External USB Port • Microphone • Camera You can also enable or disable Media Card and 1394 together. Default Setting: All devices are enabled.
Keyboard illumination	Allows you to configure the keyboard illumination feature. The options are: • Disabled • Level is 25% • Level is 50% • Level is 50% • Levels is 100% Default Setting: **Level is 25%**

Option	Description
Drives	Allows you to configure the SATA drives on board. The options are: • SATA-0 • SATA-1 • SATA-4 • SATA-5 Default Setting: All drives are enabled.

Video

Option	Description
LCD Brightness	Allows you to set the display brightness depending up on the power source (On Battery and On AC).

Security

Option	Description
Admin Password	Allows you to set, change, or delete the administrator (admin) password. **NOTE:** You must set the admin password before you set the system or hard drive password. **NOTE:** Successful password changes take effect immediately. **NOTE:** Deleting the admin password automatically deletes the system password and the hard drive password. **NOTE:** Successful password changes take effect immediately. Default Setting: Not set
System Password	Allows you to set, change or delete the system password. **NOTE:** Successful password changes take effect immediately. Default Setting: Not set

Option	Description
Internal HDD-0 Password	Allows you to set or change the system's internal hard-disk drive. **NOTE:** Successful password changes take effect immediately. Default Setting: Not set.
Password Bypass	Allows you to enable or disable the permission to bypass the System and the Internal HDD password, when they are set. The options are: • Disabled • Reboot bypass Default Setting: **Disabled**
Password Change	Allows you to enable the disable permission to the System and Hard Drive passwords when the admin password is set. Default Setting: **Allow Non-Admin Password Changes** is selected
Strong Password	Allows you to enforce the option to always set strong passwords. Default Setting: **Enable Stron Password** is not selected.
OROM Keyboard Access	Allows you to set an option to enter the Option ROM Configuration screens using hotkeys during boot. The options are: • Enable • One Time Enable • Disable Default Setting: **Enable**
TPM Security	Allows you to enable the Trusted Platform Module (TPM) during POST. Default Setting: The option is disabled.
Computrace	Allows you to activate or disable the optional Computrace software The options are:

Option	Description
	• Deactivate • Disable • Activate **NOTE:** The Activate and Disable options will permanently activate or disable the feature and no further changes will be allowed Default Setting: **Deactivate**
CPU XD Support	Allows you to enable the Execute Disable mode of the processor. Default Setting: **Enable CPU XD Support** is selected.
Non-Admin Setup Changes	Allows you to determine whether changes to the setup options are allowed when an Administrator Password is set. If disabled the setup options are locked by the admin password. Default Setting: **Allow Wireless Switch Changes**is not selected.
Password Configuration	Allows you to determine the minimum and maximum length of Administrator and System passwords.
Admin Setup Lockout	Allows you to prevent users from entering Setup when an Administrator password is set. Default Setting: **Enable Admin Setup Lockout** is not selected.

Performance

Option	Description
Multi Core Support	Allows you to enable or disable multi-core support for the processor. The options are: • All • 1 • 2 Default Setting: **All**

Option	Description
Intel SpeedStep	Allows you to enable or disable the Intel SpeedStep feature. Default Setting: **Enable Intel SpeedStep** is selected.
C-States Control	Allows you to enable or disable the additional processor sleep states. Default Setting: The options **C states**, **C3**, **C6**, **Enhanced C-states**, and**C7** options are selected/enabled.
Limit CPUID	Allows you to limit the maximum value the processor Standard CPUID Function will support. Default Setting: **Enable CPUID Limit** is selected.
Intel TurboBoost	Allows you to enable or disable the Intel TurboBoost mode of the processor. Default Setting: **Enable Intel TurboBoost** is selected
HyperThread Control	Allows you to enable or disable the HyperThreading in the processor. Default Setting: **Enabled**

Power Management

Option	Description
AC Behavior	Allows you to enable or disable the computer from turning on automatically when an AC adapter is connected. Default Setting: **Wake on AC** is not selected.
Auto On Time	Allows you to set the time at which the computer must turn on automatically. The options are: • Disabled • Every Day • Weekdays Default Setting: **Disabled**

Option	Description
USB Wake Support	Allows you to enable USB devices to wake the system from Standby. Default Setting: Enable USB Wake Support is not selected. NOTE: This feature is only functional when the AC power adapter is connected. If the AC power adapter is removed during Standby, the system setup will remove power from all of the USB ports to conserve battery power.
Wireless Radio Control	Allows you to enable or disable the feature that automatically switches from wired or wireless networks without depending on the physical connection. Default Setting: The options Control WLAN radio and Control WWAN radio are selected.
Wake on LAN/WLAN	Allows you to enable or disable the feature that powers on the computer from the Off state when triggered by a LAN signal or WLAN signal or both. Default Setting: Disabled
ExpressCharge	Allows you to enable or disable the ExpressCharge feature. The options are: • Standard • ExpressCharge Default Setting: ExpressCharge

POST Behavior

Option	Description
Adapter Warnings	Allows you to enable or disable the system setup (BIOS) warning messages when you use certain power adapters. Default Setting: Enable Adapter Warnings is selected.

Option	Description
Keypad (Embedded)	Allows you to choose one or two methods to enable the keypad that is embedded in the internal keyboard. Default Setting: Fn Key Only
Mouse/Touchpad	Allows you to define how the system handles mouse and touch pad input. The options are: • Serial Mouse • PS2 Mouse • Touchpad/PS-2 Mouse Default Setting: Touchpad/PS-2 Mouse
Numlock Enable	Allows you to enable the Numlock option when the computer boots. Default Setting: Enable Numlock is selected.
USB Emulation	Allows you to enable or disable the Legacy USB Emulation. Default Setting: Enable Legacy USB Emulation is selected.
Fn Key Emulation	Allows you to set the option where the <Scroll Lock> key is used to simulate the <Fn> key feature. Default Setting: Enable Fn Key Emulation is selected.
POST HotKeys	Allows you enable the sign-on screen message display indicating the keystroke sequence to access the System Setup option menu. Default Setting: Enable F12 Boot Option Menu is selected.
Fastboot	Allows to set the option to speed up the boot process. The options are: • Minimal • Thorough • Auto Default Setting: Thorough

Virtualization Support

Option	Description
Virtualization	Allows you to enable or disable the Intel Virtualization Technology. Default Setting: **Enable Intel Virtualization Technology** is selected.
VT for Direct I/O	Allows you to enable or disable Virtualization Technology for Direct I/O. Default Setting: **Enable VT for Direct I/O** is selected.

Wireless

Option	Description
Wireless Switch	Allows to set the wireless devices that can be controlled by the wireless switch. The options are: • WWAN • WLAB • Bluetooth Default Setting: All the options are selected.
Wireless Device Enable	Allows you to enable or disable the wireless devices Default Setting: All the options are selected.

Maintenance

Option	Description
Service Tag	Displays the Service Tag of your computer.
Asset Tag	Displays the Asset Tag.
SERR Messages	Allows you to create a system asset tag.

System Logs

Option	Description
BIOS Events	Allows you to view and clear the System Setup (BIOS) POST events.
DellDiag Events	Allows you to view and clear the DellDiag events.
Thermal Events	Allows you to view and clear the Thermal events.
Power Events	Allows you to view and clear the Power events.
BIOS Progress Events	Allows you to view and clear the BIOS Progress Events.

Diagnostics 32

Device Status Lights

Turns on when you turn on the computer and blinks when the computer is in a power management mode.

Turns on when the computer reads or writes data.

Turns on steadily or blinks to indicate battery charge status.

Turns on when wireless networking is enabled.

Battery Status Lights

If the computer is connected to an electrical outlet, the battery light operates as follows:

- **Alternately blinking amber light and blue light** — An unauthenticated or unsupported non-Dell AC adapter is attached to your laptop.
- **Alternately blinking amber light with steady blue light** — Temporary battery failure with AC adapter present.
- **Constantly blinking amber light** — Fatal battery failure with AC adapter present.
- **Light off** — Battery in full charge mode with AC adapter present.
- **White light on** — Battery in charge mode with AC adapter present.

LED Error Codes

The following table shows the possible LED codes that may display when your computer is unable to complete a power on self test.

Appearance			Description	Next Step
Blinking	Solid	Solid	Processor error	Replace the system board.

Appearance			Description	Next Step
Solid	Blinking	Solid	Memory is detected but has errors	1. Reseat the memory. 2. If two modules are installed remove one and test. Try the other module in the same slot and test. Test the other slot with both modules. 3. Replace the memory. 4. Replace the system board.
Blinking	Blinking	Blinking	System board error	Replace the system board.
Blinking	Blinking	Solid	Video card error	Replace the system board.
Blinking	Blinking	Off	Keyboard error	1. Reseat the keboard cable. 2. Replace the keyboard.
Blinking	Off	Blinking	USB controller error	Unplug the USB device (if any)
Solid	Blinking	Blinking	No SODIMMs are installed	1. Install supported memory modules. 2. If memory is already present, reseat the module(s) one at a time in each slot. 3. Try known good memory from another computer or replace the memory. 4. Replace the system board.
Blinking	Solid	Blinking	Display panel error	1. Reseat the display cable. 2. Replace the display panel. 3. Replace the video card/system board.
Off	Blinking	Blinking	Modem error	1. Reseat the modem. 2. Replace the modem. 3. Replace the system board.

Contacting Dell 33

Contacting Dell

NOTE: If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

1. Visit **support.dell.com**.
2. Select your support category.
3. If you are not a U.S. customer, select your country code at the bottom of the page, or select **All** to see more choices.
4. Select the appropriate service or support link based on your need.